Activation of Collective Learning Network to Strengthen Artificial Intelligence Fusion Technology

Young Saing Kim

Artificial intelligence and convergence technology is a core competence that determines the core competitiveness of the 4th industrial revolution. Although the interest has increased since the Alpha Go event, the level of technology, experts, investment and infrastructure are insufficient.

Artificial intelligence, led by smart technology, has emerged as the core of national competitiveness in the 4th Industrial Revolution, as artificial intelligence that learns by itself and IOT, cloud, and big data are combined and developed rapidly.

The most important characteristics of the artificial intelligence and its application are the results of a learning network that occurs within the industrial ecosystem of many researchers and companies, not individuals or individual institutions. Therefore, in order to develop artificial intelligence, it is necessary to strengthen learning network that can activate group learning. The robustness of the industrial ecosystem that supports this will determine the competitiveness of the industrial structure.

A single star company decides its overall competitiveness, that is, the hierarchical integration strategy led by large companies is no longer easy to remember. Development of artificial intelligence network provides opportunities for many technology start-ups and job creation. The domestic artificial intelligence specialists and start-ups have considerable capabilities. Universities and research institutes are also recognized in the field, but professional workers and start-ups are not networked and develop into new businesses or programs. Therefore, Collective learning based on network is a driving force that facilitates the development of various business opportunities and product development based on the cooperation of experts and companies with various competencies.

Group learning networks of artificial intelligence related technology are

defined as a concept that includes knowledge creation and dissemination, inter-organizational network, and innovation activities outside the company for activities in which connected professionals and companies create new value. These diverse professional and corporate networks are mainly used to develop ideas to be realized in the lean process and value chain, to create and segment customers. In order for lean processes to work smoothly through such group learning, an ecosystem supporting this can be established. This horizontal network ecosystem is located at a point opposite to the hierarchical integration of pyramid shaped subcontracts

As a healthy ecosystem is built, group learning becomes possible, and various experts and corporations can truly collaborate for open innovation. As a result, new products, new processes, start-ups, and system innovation, Silicon Valley, is a representative example of ecosystem built by these technology leaders. From early on, Silicon Valley has established a natural ecosystem based on building an ecosystem, so universities, research institutes, large corporations, start-ups and various specialists are connected in a network form and the melting pot of the capacity is greatly activated. Ecosystem-based group learning is incompatible with the pyramid-type subcontracting organization of the domestic manufacturing industry. Individual and start-ups, as well as SMEs and large corporations, have the same context as the model of win-win or symbiosis for the development of the whole ecosystem.

Objectives

- ○ Review domestic and foreign artificial intelligence industry, analyzing data related to artificial intelligence development strategy by country, and analyzing support policy data related to artificial intelligence
- ○ Identify ecosystem and collective learning cases by investigating domestic start-ups and technology founders or related experts
- ○ Organize an ecosystem and build a group learning network by working on domestic artificial intelligence experts and corporate panels to discuss ways to activate start-ups and collect opinions
  - Investigate artificial intelligence related technology start-up entrepreneurs, accelerator supporting such entrepreneurs, and clusters focused on technology companies

○ Overseas case study of major countries, field survey

- Investigate the case of artificial intelligence industry ecosystem and group learning networks.
  The artificial intelligence of the Silicon Valley, a major US artificial intelligence research center, and major corporations such as the Google autonomous drive vehicle and Tesla Auto Pilot, has evolved into an open source platform such as a tensor flow, and is building an artificial intelligence research complex.
- Aim to develop a model that can be applied to the domestic Pangyo Techno Valley through case studies of Silicon Valley companies and institutions related to artificial intelligence.

Results

○ Pros and cons of Domestic Group Learning Network

- Industrial parks, science parks, and business park development projects related to technology start-ups or start-ups that are promoted by government policies are mostly focused on providing good space, so that they do not consider establishing a group learning network or realize the necessity of realizing it. Inadequate
- Technological innovation startups like Silicon Valley need to build industrial parks that are suitable for building cooperative networks. Pangyo Techno Valley has secured physical access but failed to build a group learning network
- Cooperation for most start-ups or start-ups is limited to colleagues who work in the same workplace, not private colleges or graduate alumni
- Social capital is confined to individual collectivism, and if it is not a private relationship such as a school, it is not active or limited to a network structure capable of group learning aimed at start-up.
- It is difficult for entrepreneurs to utilize various capabilities and resources needed for innovative start-up or development because research institutes, schools, corporations and individuals are not connected to networks. Accelerators are also trying to form networks, but they are limited to utilization of internal resources.

○ Direction for building a group learning network

- Establishment of infrastructure and business plan that realizes this by focusing on strengthening group learning network, and it is important for research and development and start-up support project to be focused on S / W centered on H / W
- In order to be competitive, it is necessary to integrate immigration policy and entrepreneurship programs that allow various forms of employment, acceptance of cultural diversity to collect diverse and excellent global talent, not to focus on domestic personnel.
- Voluntary participation of companies is more important, for example, by spreading the organizational culture of enterprises into an innovative start-up culture emphasizing function- oriented horizontal and lifelong ability development.
- Collaboration of higher education institutions with network membership that combines capability development and extreme networking to build social trust, a component of the group learning network.
- Successful entrepreneurs actively act as accelerators to build a virtuous ring of entrepreneurial ecosystem that leads investment as well as role model of the preparer

○ Strategy for building a group learning network in Innovation Valley

- Pangyo Techno Valley has succeeded in physical clustering of related companies by benchmarking successful innovation hubs such as Silicon Valley. However, the establishment of a group learning network among companies has failed half the success
- The innovation valley should be planned to build a group learning network with physical clustering. However, when social trust is small and lacks competence information of individuals and companies, there is a need for selective and intensive strategies
- Provide differentiated incentives based on aggressive networking participation to select the subjects that participate in the innovation valley that agrees with high participation and high achievement, and establishes governance to lead major regulatory and management
- Provide global innovation hubs, information disclosure, and incentives for internationally competent personnel to start up in Korea to network with

domestic and overseas experts and companies in connection with overseas innovation valley.

- The main concepts and contents of the group learning network need to present the direction of the implementation plan for the specific situation or business. Therefore, the conclusion and implications of this study are centered on the way to build a group learning ecosystem of the 2nd Pangyo Techno Valley or e-valley which is promoted by the government.

Conclusion and Policy suggestions

○ The government is proposing the establishment of an innovation hub as a basic plan for sustainable economic development and job creation

- Pangyo Techno Valley was started by Gyeonggi Province and led by the Ministry of Industry in order to create clusters of technological enterprises to achieve integration effect.
- Although it has accomplished significant achievements in securing the necessary space for notifying the technology companies, it has not been enough to build network by focusing on physical space and to activate group learning. It's next to me, but there is no networking.
- There was a limit to the effective cooperation of the government at the government level with the business centered on the local government. Therefore, a project to create Korean technology venture and start-up cluster by benchmarking Silicon Valley was planned.
- In the key areas of the 4th industrial revolution, domestic companies are not able to show their prominence and the preemption of US and Chinese companies is deepening. This project is important for future national competitiveness and securing of growth engine.

○ Concept and main characteristics of e-valley

- The concept of this project is to secure the physical, social and technological space to feel and experience various forms of 'Freedom' that maximize creativity and imagination from 'life environment'.
- Increase the flexibility of securing space according to the growth of start-up and consider the space arrangement and utilization that various services required for start-up (law, accounting, marketing, HR, etc.)

- Added the duty to start-up so that the start-up can not be occupied because of the expensive rent, and on the contrary, the additional burden due to the occupancy is reduced. Also, in order to secure a convenient and cheap residential area, it is necessary to establish a housing supply plan based on the time of commuting based on the residence, and to consider the pre-sale control and the family rest space.
- In order to distribute development profits due to the construction of industrial complexes and innovative hubs, the legal system to make the development profits return to start-ups rather than developers
- Make room for start-up and space for various attempts. In other words, by making mandatory startup space for the core three levels ten years, the Innovation Hub has made space for start-up sustainable.
- An important role of the university in innovation valley like Stanford University in Silicon Valley. In order for the university to strengthen its networking, it needs to support alumni companies, technical holding companies, general meetings, and lLP business-related duties, and consortiums of universities and companies
- Establishing space for foreign companies and aiming to attract 500 technical start-ups and venture companies. Foreign companies establish plans for providing administrative support and services necessary for domestic settlement, and implement plans to attract foreign start-ups.

○ Demand analysis results show that the cooperative network and group learning ecosystem are emphasized.

- Demand for networking and group learning in the demand survey for business was strong. Especially, we need to secure a co-working space for start-up and to expand the connection with existing venture campus.
- By further subdividing networking needs, we are encouraging Corporate Venturing (CV), which is the result of a group learning network, and expecting cooperation with Corporate Venture Capital (CVC) to be the most necessary network result. CV is a collaborative effort between companies that have acquired technology and business opportunities, and expectations for networking's typical expectations are high.
- There is also a need to revitalize communities where venture companies and start-ups that need cooperation can meet and exchange information and create a lot of activities.

- Designing for organic connection of collaborative spaces to design physical spaces and building circles and shared facilities to reflect these networking and group learning ecosystem needs.

○ Major tasks for activation of group learning network

- Demonstration of the network in demand analysis is a business model in Silicon Valley where 'Founder - VC - Cooperating Company' cooperates to start commissioning. These results can be obtained when the key participants are socially involved, competent, and able to share and efficiently utilize resources in order to obtain the results of such networking.
- Establish strong network membership by confirming the willingness and ability to participate in the project when participating in the business, so that both the company and the founder who participated in the business should have the level of the collaborative relationship and have appropriate trust, competence and entrepreneurship.
- Network participation contracts and incentive schemes linking expected revenues and networking participation in business are required to actively participate in networking and lead to new opportunities.
- If foreign labor force is needed, visa, tax and immigration regulations should be reorganized so that excellent manpower can flock to the world and become the most desirable innovation hub.

○ Implementation plan of learning network

- To establish a new school and to establish a trust relationship, e-valley membership (citizenship) course completion (minimum 400 hours) is obliged to participate in the project. Participants experience extreme cooperation and collaboration and start up And establishing a business plan, horizontal organizational culture, and so on. Participant selection effect for raising the value of real estate, can not move in case of failure
- Operate competency and records management system to disclose practical information on competency, business experience and work related information, activate the system of competence and recruiting, and activate the competence market.
- Consider the higher-level credit system that can be used to distribute networking participation, especially contributions, as social money, to use

them as money in e-valley, and to distribute resources and opportunities that have significant competition.

- Ensure high commitment and high rewards by declaring e-valley Nation and operating the citizenship system to clarify obligations and rights under citizenship. Also, when utilizing foreign nationals
- “The e-valley Nation” autonomous government is constituted by the citizens who have citizenship through a democratic process and established an internal legal system for major issues. It is critical to ensures a certain level of autonomy in regulation, such as Silicon Valley. 20% New Citizenship and Citizenship Deprivation by Reexamination of Citizenship in 3 Years